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Report of the Secretary-General

Addendum

Commission on Sustainable Development work programme on indicators of sustainable development

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I. Introduction

1. Indicators perform many functions. They can simplify, clarify and make aggregated information available to policy makers that can lead to better decisions and more effective actions. They can help to incorporate physical and social science knowledge into decision-making and they can help to measure and calibrate progress towards sustainable development goals. They can provide an early warning, sounding the alarm in time to prevent economic, social and environmental damage. They are also important tools to communicate ideas, thoughts and values because, as one authority has noted, "We measure what we value and value what we measure".

2. The United Nations Conference on Environment and Development (UNCED) recognized the important role that indicators could play in helping countries to make informed decisions concerning sustainable development. This recognition is articulated in chapter 40 of Agenda 21, which calls on countries at the national level, as well as international, governmental and non-governmental organizations, to develop and identify indicators of sustainable development that can provide a solid basis for decision-making at all levels. Moreover, Agenda 21 specifically calls for the harmonization of efforts to develop sustainable development indicators at the national, regional and global levels, including the incorporation of a suitable set of these indicators in common, regularly updated and widely accessible reports and databases.

3. The present addendum presents the steps taken to finalize a core set of indicators of sustainable development as a supplement to the main report on chapter 40 (Information for decision-making and participation). In addition to the information provided in the present addendum, two additional reports are being made available to the Commission as background documents, entitled "Indicators of sustainable development: framework and methodologies" and "Initiatives for the aggregation of sustainable development indicators".

II. Commission on Sustainable Development work programme on indicators of sustainable development (1996-2000)

A. Mandate of the Commission

4. At its third session, in 1995, the Commission on Sustainable Development approved the programme of work on indicators of sustainable development (E/CN.17/1995/18, annex) and called upon the organizations of the United Nations system, intergovernmental and non-governmental organizations, with the coordination of its secretariat, to implement the key elements of the work programme.

5. The main objective of the work programme was to make indicators of sustainable development accessible to decision makers at the national level, by defining them, elucidating their methodologies and providing training and other capacity-building activities. At the same time, it was foreseen that indicators as used in national policies could be used in the national reports to the Commission and other intergovernmental bodies.

B. Key elements of the work programme

6. The work programme comprised the following key elements:

(a) Enhancement of information exchange among all interested actors on research, methodological and practical activities associated with indicators of sustainable development, including the establishment of a freely accessible database (1995-continuing);

(b) Development of methodology sheets, which would describe for each of the indicators its policy relevance, underlying methodology, data availability assessment and sources, to be made available to Governments (1995-1996);

(c) Training and capacity-building at the regional and national levels in the use of the indicators for monitoring progress towards sustainable development (1995-1998);

(d) Testing of an appropriate combination of indicators and monitoring of experiences in a few countries to gain experience, assess applicability and

further develop the indicators for sustainable development (1996-1998);

(e) Evaluation of the indicators and adjustment, as necessary (2000);

(f) Identification and assessment of linkages among the economic, social, institutional and environmental elements of sustainable development to further facilitate decision-making at all levels (2000);

(g) Development of highly aggregated indicators, involving experts from the areas of economics, the social sciences and the physical sciences and policy makers, as well as incorporating non-governmental organization and indigenous views (2000).

C. Criteria for the selection of indicators

7. Indicators were selected and developed in accordance with the following criteria:

- Primarily national in scale and scope;
- Relevant to the main objective of assessing progress towards sustainable development;
- Understandable, that is to say, clear, simple and unambiguous, to the extent possible;
- Conceptually sound;
- Within the capabilities of national Governments to develop;
- Limited in number, remaining open-ended and adaptable to future developments;
- Broad in coverage of Agenda 21 and sustainable development;
- Representative of international consensus, to the extent possible;
- Dependent on data that are readily available or available at a reasonable cost, adequately documented, of known quality and updated at regular intervals.

8. Based on these criteria, 134 indicators were selected to comprise an initial core set or "menu" of indicators from which countries could select in developing their own indicators programmes. These indicators were organized in a driving force-State-response framework, according to their categorization as driving force, State or response indicators.

III. Main phases and approaches to implementation

A. Phase 1 (May 1995-April 1996)

1. Development of the indicator methodology sheets

9. One of the significant tasks of the first phase was the preparation methodology sheets for each indicator. Building on existing work, a cooperative, consultative and collaborative approach was used to produce the methodology sheets. More than 30 organizations of the United Nations system, other intergovernmental, non-governmental and major group organizations supported this work, assuming lead roles in the drafting of methodology sheets appropriate to their mandate and experience (these agencies are listed in annex I).

10. An expert group, consisting of 45 members of United Nations agencies, other international organizations and non-governmental organizations, guided the overall process of developing the methodology sheets. In addition, approximately 100 individuals with indicator experience from international and national agencies and non-governmental organizations participated in the process by providing advice and comments and contributing their ideas, information and expertise.

11. In February 1996, an international expert workshop on methodologies for indicators of sustainable development was held in Glen Cove, New York, to review the preliminary methodology sheets. Several workshops sponsored by national Governments were also held to further discuss and refine the draft methodology sheets.

12. The collection of methodology sheets was published by the United Nations in August 1996 under the title "Indicators of sustainable development: framework and methodologies". This document, commonly referred to as the "blue book", was distributed to all Governments with the invitation to use and test the indicators and to provide feedback on the results. The goal was to have a more accepted and definitive set of sustainable development indicators by the year 2001.

2. Content of the methodology sheets

13. The methodology sheets contain, inter alia, the following information:

- Basic information on the indicator, including its definition and unit of measurement. In addition, the relevant Agenda 21 chapter and the type of indicator are listed to locate the indicator in the DSR framework;
- Purpose and usefulness of the indicator for sustainable development decision-making (i.e., policy relevance), international targets, where available, and relevant international conventions if the indicator issue is of primary global significance;
- Conceptual underpinnings and methodologies associated with the indicator, including the underlying definitions, measurement methods and a summary of its limitations and alternative definitions;
- Data availability to illustrate the importance of regular data collection and updating to support systematic reporting;
- Listing of the agency or agencies (lead and cooperating) involved in the preparation of the methodology sheets;
- Other information (e.g., contact points, other references and readings).

14. A conscious effort has been made to use a consistent format to frame the contents of the methodology sheets. The methodology sheets were designed to assist countries in the task of developing the priority indicators that are considered most relevant in the context of their sustainable development policies and programmes. The methodology sheets were to form a base and starting point for the process of indicator development, and were understood to be open to enhancement, refinement, amendment and change.

B. Phase 2 (May 1996-January 1998)

1. Training and capacity-building

15. To address the need for building the necessary capacity and knowledge on the use of indicators, a series of briefing and training workshops at the regional level was initiated from November 1996 through June 1997. These were organized by the secretariat of the Commission with the support and cooperation of the Economic and Social Commission for Asia and the Pacific (ESCAP) and the Government of the Netherlands for the Asia and Pacific region; the Government of Costa Rica for the Latin America and the Caribbean region; and the Government of Ghana for the Africa region. The Africa regional workshop was co-sponsored by the United Nations Development Programme (UNDP) Capacity 21 programme.

16. The main objective of all the workshops was to provide an introduction and training in the use of indicators as tools for national decision-making and to explore related methodologies for indicator development. Special attention was given to identifying national priorities and relating them to the process of indicator identification and selection.

17. Several countries followed up on the regional workshops with national training workshops. In the Asia and Pacific region, ESCAP provided seed money for implementation of national training workshops, which were convened in China, the Maldives, Pakistan and the Philippines.

18. During these workshops, a call was made for further capacity-building and technical assistance to secure implementation and follow-up of the programme at the national level. In response, the Division for Sustainable Development of the United Nations Secretariat supplemented its capacity-building activities by the provision of technical support to developing countries that had requested assistance for specific activities, including Barbados, China, Ghana, Kenya and Nigeria. The focus of the technical support activities has been twofold: (a) to assess the state of indicator availability and use at the national level, and (b) to propose a plan of action to achieve an increased level of sustainable development indicator development and use, to the extent possible, with linkages to the monitoring of national strategies and action plans for sustainable development.

19. Voluntary "twinning arrangements", recommended by the Commission and the Division's expert group on indicators as a capacity-building instrument, were also established in several countries. These ranged from cooperation among "equal partners", where twinning merely involved sharing of information, and expertise and partnerships, where one country was providing significant technical and

financial support to enable testing to be carried out by its counterpart. These arrangements produced fruitful outcomes for all partners and have been highly encouraged to continue in the future.

2. National testing

20. At its fourth session, in 1996, the Commission encouraged Governments to pilot test, utilize and experiment with the proposed initial set of indicators and related methodologies over a two-to-three-year period. The purpose of the national testing was to gain experience with the use of indicators, to assess their applicability according to national goals and priorities for sustainable development, and to propose changes to the set and its organizational framework.

21. The national testing programme was launched in November 1996, on the occasion of an international workshop on indicators of sustainable development, held in Ghent, Belgium, and hosted by the Governments of Belgium and Costa Rica. The countries attending the meeting reviewed and endorsed the guidelines for national testing. The guidelines essentially provided suggested testing procedures, including modalities for its organization, implementation options, assessment and evaluation methods, institutional support and capacity-building, and reporting requirements.

22. Twenty-two countries covering all regions of the world participated, on a voluntary basis, in the testing process. By regions, the testing countries were:

Regions	*Countries*
Africa	Ghana, Kenya, Morocco, South Africa, Tunisia
Asia and the Pacific	China, Maldives, Pakistan, Philippines
Europe	Austria, Belgium, Czech Republic, Finland, France, Germany, United Kingdom
Americas and the Caribbean	Barbados, Bolivia, Brazil, Costa Rica, Mexico, Venezuela

23. In addition to the official testing countries, a number of countries (Canada, Nigeria, Switzerland and the United States, among others) were affiliated with the process through voluntary sharing of information, participation in meetings and other forms of exchange of expertise. The Statistical Office of the European Communities (Eurostat) prepared a test compilation of 54 sustainable development indicators for the Commission, drawing on statistical data existing within the European Community. This pilot study was produced as an official publication of the European Communities in 1997. Eurostat provided invaluable technical, substantive and financial support throughout the Commission's work programme.

24. Countries were requested to provide periodic reports on the testing phase to the Division for analysis and for circulation to members of the expert group and testing countries. A format for reporting on the progress of national testing was issued in 1997 to facilitate the submission of consistent and detailed information that would allow for a final revision of the indicators and related methodologies. The reports of all the testing countries can be found on the Secretariat web site at *http://www.un.org/esa/sustdev/isd.htm*.

25. Most of the testing countries adopted different approaches to the testing exercise, ranging from plain evaluation of data availability for all or a few selected indicators to embarking on the whole process of developing their own independent set of national indicators while using the Commission indicators as a point of reference. Nevertheless, the majority of the countries aligned their processes with the Commission's testing guidelines, while others integrated the guidelines into their own unique design.

26. All the testing countries employed participatory implementation strategies. This is evident in the respective institutional arrangements chosen by countries as the coordinating mechanism for the testing process. The majority of the countries adopted highly integrated multi-stakeholder strategies involving government ministries, NGOs, academia and relevant business organizations, while others confined the process within government ministries. Annex II lists the various institutional coordinating mechanisms and implementation approaches employed in the different countries.

27. Within these national coordinating bodies, most of the countries also created working groups, expert teams and committees that focused on the indicator work. The formation of an indicator network (for instance, in South Africa and Finland) was also found useful in fostering the integration of ministries and research institutions.

28. Several countries also experimented with "twinning", where two or more countries agreed to either engage in mutual exchange of information and experience in indicator development (e.g., South Africa and Finland) or where one country provided significant technical and financial support to another participating country (France and Tunisia). These arrangements provided an excellent platform for information exchange and sharing of expertise, creating win-win situations with the involved countries achieving a wider knowledge base.

29. Halfway through the implementation of the testing programme, a global meeting of testing countries was hosted by the Government of the Czech Republic in Prague in January 1998. The meeting took stock of the progress in implementation and discussed ways to improve the process and ultimately the results of the programme.

C. Phase 3 (January 1998-December 2000): lessons learned

1. Evaluation of testing results and indicator set

30. The testing phase was officially concluded in December 1999 by an international workshop on the Commission's indicators of sustainable development, hosted by the Government of Barbados and supported by the Government of Germany and the Division for Sustainable Development. This meeting provided the forum for the assessment of the Commission's indicators of sustainable development, their applicability and their usefulness in supporting national decision-making, and served as a venue for the exchange of information at the national, regional and global level on sustainability indicators and their practical use.

31. All relevant information on the testing programme including country reports was compiled and organized into a database, which served as an analytical tool for reviewing testing results, the indicator framework and the working list of indicators.

32. Many countries pointed out that the testing process was, in general, a successful exercise. The highly participatory approach adopted by countries in the testing exercise not only heightened awareness on the value and importance of indicators but also increased levels of understanding on sustainable development issues. Moreover, the testing has reportedly inspired the launching of other indicator initiatives and has tied many players together.

33. In many cases, making use of existing structures, such as national committees or councils for sustainable development, was seen as useful in organizing the national coordinating mechanism. On the other hand, in some countries the testing of indicators acted as a positive catalyst in the establishment of new mechanisms for coordinating both the indicators programmes and the formulation of sustainable development strategies, and has demonstrated the potential of collaboration and cooperation in advancing the goals of sustainable development.

34. The involvement of major groups and stakeholders had been found effective in achieving the full integration of user perspectives in the identification of national sustainable development priorities and corresponding indicators. It has been noted that in many developing countries, NGOs, the private sector and other major groups had already been involved in the national coordinating committees for environment and sustainable development, and their participation gave impetus to the national testing process.

35. It was also noted that when high-level policy makers have been involved and are genuinely committed to sustainable development, the work on indicators progressed more rapidly.

36. Notwithstanding the aforementioned successes, several institutional constraints affected the implementation of the testing, such as limitations on the availability of financial and human resources, difficulty in mobilizing the relevant experts and stakeholders, lack of coordination between statistical agencies and the indicator focal point, low level of awareness among stakeholders, low level of commitment on the part of participating institutions, competing work demands, and government leadership transitions that resulted in discontinuities in the implementation of the indicator process. This called for strengthening capacity-building programmes in the form of human resource and organizational development. A strong human resource base is central to the multi-stakeholder process, as are properly coordinated and highly committed institutional mechanisms.

37. Time as well as financial constraints also affected the testing undertaken in some countries. In view of the

need to go by the rather strict timetables of the testing process, adjustments had to be made on the degree and level of consultations.

38. To be more successful, it was also felt that the indicator programme should be viewed and treated as a more permanent programme that is closely linked with national reporting to the Commission and integrated with the development of national policy.

2. Working list of indicators

39. Testing results showed that sustainable development indicators clearly have potential for assisting in national decision-making. Countries reported to have used or planned to use the indicators to:

- Bring important issues to the political agenda;
- Help to identify main trends in priority sectors;
- Facilitate reporting the state of sustainable development to decision makers and the general public, both domestic and international;
- Promote national dialogue on sustainable development;
- Help to assess the fulfilment of governmental goals and targets, and in the revision of these goals and targets;
- Facilitate the preparation and monitoring of plans;
- Help to assess the performance of both policies and actions when implementing the plans;
- Explain the concept of sustainable development in practical terms;
- Focus the national and sectoral programmes and State budgets towards sustainability.

40. As can be expected, not all of the indicators in the working list were found relevant in the context of a testing country. In selecting the applicable indicators, most countries engaged in a process of prioritizing the indicators using relevant criteria, such as availability and accessibility of data, usefulness and policy relevance. In general, however, the testing countries found the working list to be a good starting point for identifying options from which they could choose national indicators.

41. There was some uncertainty regarding the focus of the indicator set, as to whether it was geared for national use or for international comparison. While testing had been carried out at the national level, it was nonetheless perceived to have an international context, taking into account the mandate of the Commission and the structure and content of the methodology sheets, which describe commonly accepted methodologies, internationally harmonized terminology and internationally compatible classification systems. It was clarified, however, that the primary goal of the indicator programme is to develop a tool to assist national decision-making. On the other hand, it is considered that a good indicator system should be able to reflect the specific issues and conditions of a country or a region but should nevertheless be harmonized internationally to the extent possible.

42. Some countries reflected in their reports the problem of establishing the link between national strategies and the indicators. This was particularly true for countries that had commenced their indicator programmes in the absence of an integrated sustainable development strategy. It is hoped that this will change as more countries develop national sustainable development strategies and the use of indicators of sustainable development gains momentum as a national planning and monitoring tool.

43. Testing countries, however, also felt that improvements could be made both regarding the indicators and the methodology sheets. While the methodology sheets for the indicators were found particularly useful in drawing attention to improving the availability of data for monitoring the implementation of Agenda 21, a call was made for establishing more concrete and clearly defined concepts for the indicators.

44. It was also observed that the working list of indicators was too long, making it difficult to test all the indicators. Furthermore, it was felt that the list attempted to cover too many issues, leading to a very wide scope of testing. Suggestions were made, therefore, to better target the set to key problems or issues. Indicators for a number of emerging problem areas, such as tourism, transportation, cultural heritage and disaster vulnerability, were suggested to be included in the list.

45. Testing countries also proposed to develop indicators to cover areas that had not been addressed in

the testing, such as reef conservation and the health of reef ecosystems and specific coastal issues; energy; biotechnology; trade and environment; safeguarding of cultural heritage; social and ethical values; human resource development; under-employment; expatriate labour force; natural resource accounting; and capacity-building.

46. Most countries, nonetheless, shared the view that the final list of indicators should be short, focused, pragmatic and flexible so that it could be adapted to country-specific conditions.

3. Revising the framework and indicator list

47. Guided by the reports from the testing countries and continuing expert discussions on the indicators and the framework, the Division for Sustainable Development began, in early 1999, the process of defining the appropriate measures to take in the light of the various concerns raised during the implementation of the work programme.

48. At its fifth meeting, in April 1999, the expert group on indicators of sustainable development discussed midstream actions to prepare for the conclusion of the work programme. The group addressed the following issues: inclusion of new areas identified as priorities by the testing countries; deletion of issues less reported on by countries; possible revision of the DSR framework; selection of criteria for the core set of indicators; and advancing the testing in selected countries.

49. While the DSR approach proved extremely useful in organizing the indicators and the testing process as well, the expert group felt that there was a need to refocus the indicator framework to emphasize policy issues or main themes as recommended by a number of countries. It was felt that redesigning the indicator framework in this manner would make the value of indicator use more obvious, and thereby help stimulate increased government and civil society involvement in the use and testing of indicators. Accordingly, a study was undertaken to design a theme-based indicator approach.

50. The resulting organization presents the indicators under four major dimensions, further broken down into themes and sub-themes (see table 1). The determination of the major areas, themes and sub-themes was based on a broad range of information, the major sources of which were the reports of the testing countries and international initiatives that have measured or conceptualized sustainability. The testing reports were analysed to generate the following information: priorities that each country stated in order to achieve sustainable development, the Commission indicators tested (why they tested them and what problems they had in the process), new indicators proposed and the criteria used by each country in the indicator selection.

Table 1
Theme/sub-theme framework for indicators

Dimension	*Theme*	*Sub-theme*	*Indicators*
Social			
Environmental			
Economic			
Institutional			

51. Regarding other major international initiatives on indicator development, every effort was made to work towards convergence between the Commission's efforts and those of other organizations and agencies. Information was therefore analysed to take into account the goals identified by each international initiative and the indicators selected to measure progress towards those goals. It needs to be stressed that the selection of indicators has to be closely related to the goals and objectives of the particular programme.

52. The selection of themes, sub-themes and indicators was further based on the criteria provided for in the national testing. In addition, the following parameters, as offered by Commission testing countries, were used for making the final selection of indicators:

- Useful for decision-making and operable in the real world, have data available, easily understood, simple to use clearly and unambiguously defined; capable of being implemented using the statistical capabilities available in the country;
- Relevant to assess progress towards sustainable development;
- Based on international consensus as far as possible and useful for national reporting at the international level.

53. The revised framework was presented during the Barbados meeting (see para. 30 above), where countries agreed to:

- Maintain the four dimensions of sustainable development indicators as used in the original framework; namely economic, social, environmental and institutional;
- Accept in principle a thematic organization of the framework under the four dimensions and to cross-reference the themes to the related chapters of Agenda 21, thereby maintaining continuity and linkage with the previous chapter-based organization.

54. To further refine the thematic framework and indicators, a small working group of experts was established. The mandate of the working group was to:

- Identify and finalize key themes and sub-themes of sustainable development to be included in the presentation to the Commission at its ninth session;
- Identify core indicators related to the chosen themes and sub-themes, taking into account the national testing reports submitted to the Division for Sustainable Development;
- Prepare recommendations for additional work to be undertaken in order to finalize the substantive presentation on indicators for the Commission, such as areas needing further research, areas for long-term development and unresolved issues, as appropriate.

55. After a comprehensive analysis of the themes put forward during the Barbados meeting (see para. 30 above) and directions provided by the previous discussions of the expert group on indicators, the working group proposed the adoption of 57 indicators categorized under 15 themes and 38 sub-themes. The distribution of the indicators according to the various dimensions are as follows: 18 social; 19 environmental; 14 economic; and 6 institutional. A full description and discussion of these themes and the corresponding set of indicators and methodology sheets are contained in the background document entitled "Indicators of sustainable development: framework and methodologies". They are summarized in table 2.

4. Linkages and aggregation

56. Over the course of the implementation of the work programme, Governments have emphasized the need for aggregated measures of sustainable development or a single index of sustainable development. This concern stems from the desire to use the indicators in a more integrated and holistic manner. Many countries considered the issue of possible linkages and aggregation to be important, and with more time they would be interested to pursue the issue further.

57. In the course of national testing, little time could be devoted to a detailed study of the possible linkages between the social, economic, environmental and institutional dimensions of sustainable development. It was agreed that more work and research is needed both at the national and international levels to address this particular gap. Hence, it was suggested that in the final stage of the work programme on indicators, ways should be explored to address possible aggregation and linkage methodologies applicable to the Commission indicator set.

58. As a first response to this request, the secretariat of the Commission, with the sponsorship of Eurostat and in close consultation with its expert group, launched a study in October 1998 to analyse major initiatives in the area of linkages and aggregation and how these might respond to the focus of phase III. The study aimed to describe and analyse the work on these issues undertaken in recent years by a number of organizations at both the international and national levels. The study covered approximately 30 initiatives by international organizations, research institutes and Governments.

59. Given the results of the initial aggregation study, it was felt that further work in this area should involve relating specific aggregation approaches to the Commission framework, organized by themes and core indicators. A background document is before the Commission, entitled "Initiatives for the aggregation of sustainable development indicators". It outlines the key characteristics of major initiatives and their possible application to the Commission indicator approach.

Table 2
Commission on Sustainable Development theme indicator framework

Theme[a]	*Sub-theme*[a]	*Indicator*
		Social indicators
Equity		% population living below poverty line
	Poverty (3)	Gini index of income inequality
		Unemployment rate
	Gender equality (24)	Ratio of average female wage to male wage
Health (6)	Nutrition status	Nutritional status of children
	Mortality	Mortality rate under 5 years old
		Life expectancy at birth
	Sanitation	% population with adequate sewage disposal facilities
	Drinking water	Population with access to safe drinking water
	Health-care delivery	% population with access to primary health-care facilities
		Immunization against infectious childhood diseases
		Contraceptive prevalence rate
Education (36)	Education level	Secondary or primary school completion ratio
	Literacy	Adult literacy rate
Housing (7)	Living conditions	Floor area per person
Security	Crime (36, 24)	Number of reported crimes per 1,000 population
Population (5)	Population change	Population growth rate
		Population of urban formal and informal settlements
		Environmental indicators
Atmosphere (9)	Climate change	Emissions of greenhouse gases
	Ozone layer depletion	Consumption of ozone-depleting substances
	Air quality	Ambient concentration of air pollutants in urban areas
Land (10)	Agriculture (14)	Arable and permanent crop land area
		Use of fertilizers
		Use of agricultural pesticides
	Forests (11)	Forest area as a % of land area
		Wood harvesting intensity
	Desertification (12)	Land affected by desertification
	Urbanization (7)	Area of urban formal and informal settlements
Oceans, seas and coasts (17)	Coastal zone	Algae concentration in coastal waters
		% of total population living in coastal areas

Theme[a]	*Sub-theme*[a]	*Indicator*
	Fisheries	Annual catch by major species
Fresh water (18)	Water quantity	Annual withdrawal of ground and surface water as a % of total available water
	Water quality	BOD in water bodies
		Concentration of faecal coliform in freshwater
Biodiversity (15)	Ecosystem	Area of selected key ecosystems
		Protected area as a % of total area
	Species	Abundance of selected key species
		Economic indicators
Economic structure (2)	Economic performance	GDP per capita
		Investment share in GDP
	Trade	Balance of trade in goods and services
	Financial status (33)	Debt to GNP ratio
		Total ODA given or received as a % of GNP
Consumption and production patterns (4)	Material consumption	Intensity of material use
	Energy use	Annual energy consumption per capita
		Share of consumption of renewable energy resources
		Intensity of energy use
	Waste generation and management (19-22)	Generation of industrial and municipal solid waste
		Generation of hazardous waste
		Generation of radioactive waste
		Waste recycling and reuse
	Transportation	Distance travelled per capita by mode of transport
		Institutional indicators
Institutional framework (38, 39)	Strategic implementation of sustainable development (8)	National sustainable development strategy
	International cooperation	Implementation of ratified global agreements
Institutional capacity (37)	Information access (40)	Number of radios or Internet accounts per 1,000 population
	Communication infrastructure (40)	Main telephone lines and cell phones per 1,000 population
	Science and technology (35)	Expenditure on research and development as a % of GDP
	Disaster preparedness and response	Economic and human loss due to natural disasters

[a] Numbers in parentheses refer to the corresponding chapters of Agenda 21.

D. Proposals for action and recommendations for future work

60. The principal recommendations with respect to the work programme of the Commission are contained in the main body of the report on chapter 40 (E/CN.17/2001/4).

61. The invaluable work, support and contributions made by sponsoring and testing countries, relevant agencies of the United Nations system, non-governmental organizations, private institutions and many individual experts is gratefully acknowledged. It is strongly recommended that the kind of cooperation and collaboration that has characterized the implementation of the Commission's work programme on indicators be sustained into the future to further assist those countries who wish to incorporate the use of indicators into their own policy-making processes.

Annex I

Cooperating agencies in the development of methodology sheets

United Nations and United Nations affiliates

Secretariat of the International Strategy for Disaster Reduction

Intergovernmental Forum on Forests secretariat

United Nations Statistics Division

Population Division

United Nations Framework Convention on Climate Change

United Nations Conference on Trade and Development

Sustainable Energy and Environment Division of the United Nations Development Programme

Office to Combat Desertification and Drought of the United Nations Development Programme

Division of Environment Information and Assessment of the United Nations Environment Programme

Basel Convention on the Control of the Transboundary Movements of Hazardous Wastes and Other Wastes and their Disposal (United Nations Environment Programme)

Secretariat of the Convention on Biological Diversity

Mediterranean Action Plan (United Nations Environment Programme)

Economic Commission for Europe

Economic and Social Commission for Asia and the Pacific

Economic Commission for Latin America and the Caribbean

Economic Commission for Africa

Economic and Social Commission for Western Asia

United Nations Office for Drug Control and Crime Prevention

United Nations Centre for Human Settlements

International Labour Organization

Food and Agriculture Organization of the United Nations

United Nations Educational, Scientific and Cultural Organization

World Health Organization

World Bank

International Telecommunication Union

United Nations Industrial Development Organization

International Atomic Energy Agency

Intergovernmental organizations

European Commission

European Environment Agency

Statistical Office of the European Communities

World Conservation Union

Organisation for Economic Cooperation and Development

Non-governmental organizations

Environmental Information and Policy

International Center for Tropical Agriculture

International Institute for Sustainable Development

New Economics Foundation

Finnish Environmental Institute

SCOPE-Charles University Environmental Centre

Development Observatory, University of Costa Rica

World Resources Institute

World Wide Fund for Nature International

Wuppertal Institute for Climate, Environment and Energy

Other (international) organizations

National Institute of Public Health and the Environment

World Conservation Monitoring Centre

Government institutions

Federal Planning Office (Belgium)

Environment Canada (Canada)

Institut français de l'environnement (France)

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Germany)

Interagency Working Group on Sustainable Development Indicators, Executive Office of the President (United States)

Annex II

National arrangements for testing

Region country	*Institutional arrangements*
Africa	
Ghana	A national committee on sustainable development indicators was formed involving all types of stakeholders, including NGOs. UNDP was also involved.
Kenya	The Ministry of Planning and National Development, in collaboration with other sectors, led the national development of indicators.
South Africa	The national committee on sustainable development served as the national coordination mechanism for the testing. Mainly national government departments have been involved, although NGOs, scientific community, and data collection agencies had been approached. Task groups were formed to test indicators by categories.
Asia and the Pacific	
China	A leading group was established, consisting of the national environment protection agency and the state statistics bureau; also, an expert group was established, involving research and educational institutions.
Maldives	The Ministry of Environment was responsible for the testing, in collaboration with a working group comprising ministries and institutions, tourism and trade associations and NGOs. ESCAP provided assistance.
Philippines	A task force of members from government ministries (including statistical agencies), NGOs, academe and the private sector was created to oversee the testing initiative, under the auspices of the multi-stakeholder national council for sustainable development. The committee on social and economic dimensions of the national council has the mandate to review and endorse the results of the testing process. ESCAP provided assistance.
Europe	
Austria	The Ministry of Environment coordinated the testing with the support of federal environment agency and statistical office. The national council for sustainable development consisting of relevant stakeholder groups, including NGOs , commented on the indicators.
Belgium	The inter-ministerial conference on the environment established a working group for the testing involving regional and federal environment ministries and federal planning bureau. NGOs and scientific community are not directly involved but can comment and have shown an interest in being more involved.
Czech Republic	The Ministry of Environment, a university environmental centre and an ecological institute led the testing; an expert group was also set up.
Finland	A working group, with representatives of various ministries, research statistics and environment institutes, coordinated the testing under the national commission on sustainable development.

Region/country	Institutional arrangements
	From early 1998, local authorities and NGOs have also participated. Seminars have been arranged for wider participation and comments. The work was organized by the Ministry of Environment, in collaboration with an institute for environment.
France	Two working groups carried out the testing: a technical group involving 50 statistical and data experts, and a political group with 100 members from the national commission on sustainable development, an inter-ministerial group, the scientific community and NGOs. The Ministry of Environment coordinated the work, while an institute for environment served as the focal point.
Germany	A team involving the environmental administration and statistical office organized the testing, and an inter-ministerial working group coordinated it. A national indicator committee ensured the inclusion of interests of the stakeholders, including NGOs and local communities. A scientific expert team provided advice.
United Kingdom	Existing bodies dealing with national indicators are used for the Commission indicators exercise. They include a government round table on sustainable development and an indicators working group. The process involved stakeholders, including NGOs and local authorities.
Americas and the Caribbean	
Barbados	A steering committee was established to carry out the testing under the national sustainable development commission.
Bolivia	No information is provided on the partners involved in the testing.
Brazil	The Ministry of Environment coordinated the testing.
Costa Rica	No information is provided on the partners involved in the testing.
Mexico	Jointly between the national institute of ecology, under the Ministry of Environment, Natural Resources and Fisheries, and the national institute of statistics, geography and informatics.
Venezuela	An environmental statistics and information centre acted as the focal point for the testing.

Annex III

List of international and expert meetings

Ghent, Belgium 9-11 January 1995	First workshop on indicators of sustainable development for decision-making, hosted by the Governments of Belgium and Costa Rica, UNEP and the Scientific Committee on Problems of the Environment
New York 14 and 15 February 1995	First expert group meeting on indicators of sustainable development, hosted by the Division for Sustainable Development in cooperation with the United Nations Statistics Division
Glen Cove, New York 6-8 February 1996	Expert workshop on methodologies for indicators of sustainable development, hosted by the Environment Agency of the Government of Japan in cooperation with the Division for Sustainable Development
New York 25 and 26 July 1996	Second expert group meeting on indicators of sustainable development, hosted by the Division for Sustainable Development
Geneva 23 September 1996	Third expert group meeting on indicators of sustainable development, hosted by the United Nations System-wide Earthwatch in cooperation with the Division for Sustainable Development
Ghent 20-22 November 1996	Second international workshop on launching the testing of sustainable development, hosted by the Governments of Belgium and Costa Rica
Bangkok 26-29 November 1996	ESCAP regional consultative meeting on environmentally sound and sustainable development indicators, hosted by ESCAP in cooperation with the Government of the Netherlands and the Division for Sustainable Development
San José, Costa Rica 10-12 March 1997	Regional workshop on indicators of sustainable development for Latin America and the Caribbean, hosted by the Government of Costa Rica in cooperation with the Division for Sustainable Development
Accra 3-6 June 1997	Regional workshop on capacity-building in developing and implementing indicators of sustainable development, hosted by the Division for Sustainable Development and the UNDP Capacity 21 programme
New York 23 and 24 October 1997	Fourth expert group meeting on indicators of sustainable development, hosted by the Division for Sustainable Development
Prague 19-21 January 1998	Fourth international workshop on indicators of sustainable development, hosted by the Government of the Czech Republic supported by the European Commission

New York 7 and 8 April 1999	Fifth expert group meeting on indicators of sustainable development, hosted by the Division for Sustainable Development
Barbados 7-9 December 1999	Fifth international workshop on Commission on Sustainable Development indicators of sustainable development, hosted by the Government of Barbados, supported by the Government of Germany and the Division for Sustainable Development
New York 6-9 March 2000	Meeting of the consultative group to identify themes and core indicators of sustainable development, hosted by the Division for Sustainable Development
Quebec 25-28 September 2000	International expert meeting on information for decision-making and participation, hosted by the Government of Canada, the Department of Economic and Social Affairs and UNEP
Bangkok 16-19 October 2000	Regional consultative meeting on indicators of sustainable development in Asia and the Pacific, hosted by ESCAP